

Amendments to the Specification:

Please amend the title as follows:

~~AN IMPROVED CIRCULAR~~ SURGICAL STAPLER WITH A DETACHABLE
ANVIL

In United States Patent Application Publication No. 2006/0201993, please replace paragraph [0008] with the following amended paragraph:

[0008] U.S. Patent No. 5,104,025, registered on April 14, 1992, discloses a conventional circular stapler having a detachable anvil. The circular stapler disclosed in FIG. 1 of the U.S. Patent No. 5,104,025 is the same as the circular stapler 100 of FIG. 5. In FIG. 5, reference numerals, which are different from those of the circular stapler disclosed in the U.S. Patent No. 5,104,025, are used to explain the circular stapler 100 of a prior art for convenience. As shown in FIG. 5, the circular stapler ~~100~~900 roughly comprises an anvil ~~1090~~ and a cylindrical body ~~4095~~, and the anvil ~~1090~~ has a staple support ~~1191~~ and an anvil shaft ~~2192~~ and is detachably coupled to the cylindrical body ~~4095~~. A trocar tip ~~2293~~ passes through the cylindrical body ~~4095~~, and a lower portion of the cylindrical body ~~4095~~ is provided with a handle ~~5098~~, a trigger ~~6096~~, a safety ~~7097~~, and an adjusting screw ~~8099~~.

Please insert after paragraph [0008] the following new paragraph:

Although a method for using the circular stapler disclosed in U.S. Patent No. 5,104,025 is not illustrated therein, such a circular stapler can be explained to be used hereinafter with reference to FIGs. 5 to 8.

Please replace paragraph [0022] with the following amended paragraph:

[0022] Also, the present invention is contrived to solve the problems such as difficulties in use of a circular stapler, failure of operation, etc., and ~~it is an object of the present invention to~~ provides a circular stapler having a special structure which does not allow inner jejunum portions to be folded.

Please replace paragraph [0023] with the following amended paragraph:

[0023] ~~In order to accomplish the above object, a~~ A circular stapler ~~according to the present invention~~ comprises: a detachable anvil; a head section coupled to the detachable anvil and having a head section cover; and a cylindrical body that longitudinally ~~which extends and one end thereof long and of which the top end~~ is coupled to the head section, wherein a recessed portion is formed in a side surface of the cylindrical body positioned under the head section cover.

Please replace paragraph [0024] with the following amended paragraph:

[0024] Here, ~~it is preferable that~~ the head section cover may have a circular plate shape.

Please replace paragraph [0025] with the following amended paragraph:

[0025] Further, ~~it is also preferable that~~ the head section may comprises: a cylindrical blade; a staple holder having a plurality of staple slots which surround the outer circumferential portion of the cylindrical blade, staples being provided inside the staple slots; a push member provided with a protruded portion inserted into the staple slots for pushing the staples; and a support positioned under the push member and having a circular plate-shaped top for pushing the push member.

Please replace paragraph [0028] with the following amended paragraph:

[0028] ~~It is preferable that t~~The circular plate-shaped top ~~is~~ may be made of steel.

Please replace paragraph [0029] with the following amended paragraph:

[0029] ~~It is also preferable that t~~The ~~length~~thickness of the head section cover in a longitudinal direction of the cylindrical body ~~is~~may be set to 15 through 18 mm.

Please replace paragraph [0030] with the following amended paragraph:

[0030] ~~It is also preferable that t~~The cylindrical body may haves an arch shape.

Please replace paragraph [0031] with the following amended paragraph:

[0031] The circular stapler ~~according to the present invention~~ may further comprise a detachable cap coupled and fixed to the recessed portion.

Please replace paragraph [0032] with the following amended paragraph:

[0032] The circular stapler ~~according to the present invention~~ may further comprise a shaft which passes through the head section and the cylindrical body and extends long, and it is preferable that the diameter of the shaft is set to 1.0 through 1.5 mm.

Please replace paragraph [0033] with the following amended paragraph:

[0033] The circular stapler ~~according to the present invention~~ may further comprise a trigger which is provided at a lower portion of the cylindrical body to oppose the recessed portion and which pushes the support.

Please replace paragraph [0038] with the following amended paragraph:

[0038] FIGs. 4A and 4B are diagrams illustrating operation wounds when using the circular staplers of an experimental example of ~~according to the present invention and~~ of a comparative example of a prior art conventional circular stapler, respectively;

Please replace paragraph [0039] with the following amended paragraph:

[0039] FIG. 5 is a perspective view schematically illustrating the prior art conventional circular stapler;

Please replace paragraph [0040] with the following amended paragraph:

[0040] FIGs. 6A to 6C are diagrams illustrating respective steps of an operation using the prior art conventional circular stapler;

Please replace paragraph [0041] with the following amended paragraph:

[0041] FIG. 7 is a conceptual diagram illustrating a problem of the operation using the prior art conventional circular stapler; and

Please replace paragraph [0042] with the following amended paragraph:

[0042] FIG. 8 is a conceptual diagram illustrating another problem of the operation using the prior art conventional circular stapler.

Please replace paragraph [0045] with the following amended paragraph:

[0045] The head section cover 35 has a circular plate shape. That is, in a conventional circular stapler, a head section cover has been formed to have a lengththickness of about 25 to 30 mm in a longitudinal direction of a cylindrical body, but in the circular stapler 100 according to the present invention, the lengththickness of the head section cover 35 in the longitudinal direction of the cylindrical body 40 is largely reduced into a lengththickness of 15 to 18 mm, thereby forming a circular plate shape. Accordingly, the lengththickness of the head section 30 including the head section cover 35 is largely reduced. Further, as shown in FIG. 1, a recessed portion 41 is formed at the top side of the cylindrical body 40 under the header section cover 35, thereby securing an empty space. Grooves 42 are formed inside the recessed portion 41. The

shapes of the recessed portion 41 and the grooves 42 are given only as an example, and thus the present invention is not limited to the above shapes.

Please replace the paragraph [0049] with the following amended paragraph:

[0049] That is, since the inner diameter of a small intestine of a general person is about 27 to 33 mm, the inner circumferential length (inner diameter $\times \pi$) of the small intestine can be calculated as about 84.8 to 103.6 mm. Since the top of the head section comes in contact with a side surface of the small intestine when inserting the head section of the circular stapler according to the present invention, it can be considered that the length obtained by subtracting double the diameter (inner diameter of the small intestine: 27 to 33 mm) of the head section cover from the inner circumferential length (84.8 to 103.6 mm) is double the length~~thickness~~ of the head section cover. Therefore, since the length~~thickness~~ of the head section cover amounts to about 15.39 to 18.81 mm in maximum, the length~~thickness~~ of the head section cover can be calculated as 18.81 mm or less theoretically. However, since some length~~thickness~~ is required for providing components in the head section, it is preferable that the length~~thickness~~ of the head section cover in the circular stapler according to the present invention is set to 15 through 18 mm.

Please replace paragraph [0056] with the following amended paragraph:

[0056] In the circular stapler according to the first embodiment of the present invention, if the length~~thickness~~ of the head section cover 35 is set to 15 through 18 mm, the components constituting the head section 30 can be formed such that the staple holder 32 has a length~~thickness~~ of about 8 to 10 mm, the housing 33 of which a part of the tip is inserted into the staple holder 32 has a length of about 12 to 15 mm, and the top 341 of the support 34 has a

~~length~~thickness of about 2 to 4 mm. The ~~length~~thicknesses of the respective components constituting the head section 30 are given only to exemplify the present invention, and thus the present invention is not limited to these ~~length~~thicknesses.

Please replace paragraph [0062] with the following amended paragraph:

[0062] The handle and the trigger of the circular stapler according to the embodiments of the present invention ~~have the same structures as those of the conventional circular staplers~~ are familiar to those of ordinary skill in the art, and thus description thereof will be omitted.

Please replace paragraph [0066] with the following amended paragraph:

[0066] It is preferable that the ~~length~~thickness of the head section cover in the longitudinal direction of the cylindrical body is about 15 to 18 mm. As a result, since the head section cover of the circular stapler does not cover the whole inner diameter of the jejunum J and thus the margin exists in the space, it is possible to reduce the potential for constriction of the jejunum. In addition, since the ~~length~~thickness of the head section cover becomes smaller and thus the weight of the head section is reduced, the tension applied to the anastomosed surface of the jejunum is also reduced, so that the anastomosis is not carried out in a state where the jejunum is stretched. Accordingly, it is not necessary to sparsely fasten the staples due to the non-uniform tension and it is possible to prevent the bleeding due to the difference in tension. By forming the head section cover of the circular stapler with the ~~length~~thickness described above and forming the recessed portion under the head section cover, it is possible to simply solve the problems of the conventional circular stapler.

Please insert after paragraph [0066] the following new paragraphs:

The present invention will be explained below with reference to an experimental example of the present invention. The experimental example of the present invention is merely to illustrate the present invention and the present invention is not limited thereto.

Experimental Example

Please replace paragraph [0067] with the following amended paragraph:

[0067] An operation is processed by using a circular stapler as illustrated in FIG. 1. ~~The advantages of the present invention will become apparent through comparison with the conventional art, as shown in FIGs. 4A and 4B. FIG. 4A is a diagram illustrating the operation wound when using the circular stapler~~ illustrated in FIG. 1 of the experimental example ~~according to the present invention, and FIG. 4B is a diagram illustrating the operation wound when using the conventional circular stapler.~~

Please replace paragraph [0068] with the following amended paragraphs:

[0068] As shown in ~~(A) of~~ FIG. 4A, when using the circular stapler of the experimental example ~~according to the present invention~~, the left and right inner diameters of the jejunum J after the operation are almost equal each other. When the operation is performed using the circular stapler of the experimental example ~~according to the present invention~~, as shown in an enlarged circle(B) of FIG. 4A illustrating the inner section of the operation wound as seen from the esophagus E, no bent portion exist in the jejunum J and no tension is not applied to the mucosa, so that no ridge is generated and only normal mucosa is shown. Therefore, since the inner diameter of the jejunum J is kept equal to that before the operation, food passing from the esophagus can proceed without problem.

Please insert after paragraph [0068] the following new paragraph:

Comparative Example

Please replace paragraph [0069] with the following amended paragraph:

[0069] An operation is processed by using a circular stapler of a prior art as illustrated in FIG. 5. FIG. 4B is a diagram illustrating the operation wound when using the circular stapler illustrated in FIG. 5 of the comparative example. ~~On the contrary, w~~When using the ~~conventional~~ circular stapler of the comparative example, as shown in ~~(A) of~~ FIG. 4B, the anastomosis is performed with non-uniform tension and thus the width of the jejunum J is reduced, thereby causing problems after the operation. That is, the staples are fastened in the end portion of the esophagus E with uniform tension, but are not uniformly fastened in the jejunum J.

Please replace paragraph [0070] with the following amended paragraph:

[0070] Referring to ~~(B) of an enlarged circle of~~ FIG. 4B illustrating the inner section of the operation wound as seen from the esophagus E, it can be seen that the jejunum J is bent to form the left portion of the jejunum J and the right portion of the jejunum J and the mucosa is drawn to form the ridges. Specifically, the left portionjejunum has such a small width difficult to pass food, and the right portionjejunum which should be sutured after the operation has a rather large width. As can be seen from the sectional view, since food from the esophagus E does not proceed through the left portion of the jejunum J but stays in the right portion of the jejunum J, severe problems may be caused in digestion, etc.

Please replace paragraph [0073] with the following amended paragraph:

[0073] Further, in the circular stapler according to the present invention, since the head section cover is formed to have a small lengththickness, preferably, a lengththickness of 15 to 18 mm, it is possible to prevent large tension from being applied to the small intestine, and since the

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inner small intestine is not drawn upwardly, it is possible to keep the inner diameter of the small intestine constant even after the operation. Accordingly, it is possible to considerably reduce the potential for constricting the small intestine during the operation and it is also possible to reduce the bleeding, which may be generated due to the stapling in a state where the tension is applied.